

## ABSTRACT

A falling film plasma reactor (FFPR) provides a number of benefits for the treatment of process gases. The falling film plasma reactor uses high voltage alternating current or pulsed direct current which is applied to radially separated electrodes to thereby create a dielectric breakdown of the process gas that is flowing within the large radial gap between the two electrodes. Typical plasma reactors often utilize fixed dielectric construction which can result in potential failure of the device by arcing between the electrodes as portions of the dielectric fail. Such failures are prevented by using a dielectric liquid that constantly flows over the electrodes, or over a fixed dielectric barrier over the electrodes.